WHAT IS CLAIMED IS:

1.   A method for performing adaptive equalization comprising:

receiving a Forward Error Correction (FEC) encoded signal from a channel;

filtering the received FEC encoded signal using a filter according to at least one adjustable filter coefficient to produce a filtered signal;

evaluating the filtered signal to generate a signal error output;

adjusting the at least one adjustable filter coefficient in response to the signal error output;

performing FEC decode processing dependent on the filtered signal to generate an FEC output; and

adjusting the at least one adjustable filter coefficient in response to the FEC output.

2.   The method of claim 1 wherein the signal error output relates to Mean Squared Error (MSE).

3.   The method of claim 1 wherein the FEC output relates to bit error rate.

4.   The method of claim 1 wherein the FEC output relates to bit error count.

5.   The method of claim 1 wherein the at least one adjustable filter coefficient is first adjusted in response to the signal error output, then adjusted in response to the FEC output.

6.   The method of claim 5 wherein the at least one adjustable filter coefficient is first adjusted in response to the signal error output until a specified condition is met, then adjusted in response to the FEC output.

7.   The method of claim 6 wherein the specified condition is based on the signal error output.

8.   The method of claim 6 wherein the specified condition is based on the FEC output.

1   9.   The method of claim 6 wherein the specified condition relates to
2 an error measure falling below a predetermined level.

1   10.   The method of claim 6 wherein the specified condition relates to
2 an error measure varying less than a predetermined amount in N iterations of adjusting
3 the at least one adjustable filter coefficient, where N is a positive integer.

1   11.   The method of claim 5 wherein the at least one adjustable filter
2 coefficient is again adjusted in response to the signal error output, after being adjusted
3 in response to the FEC output.

1   12.   The method of claim 1 wherein the at least one adjustable filter
2 coefficient is selectively adjusted in response to the signal error output or the FEC
3 output.

1   13.   The method of claim 12 wherein the selective adjustment in
2 response to the signal error output or the FEC output is selected based on a
3 measurement of time-dependent variation of the channel.

1   14.   The method of claim 1 further comprising the step of generating
2 a plurality of symbols from the filtered signal based on a symbol decision clock and a
3 symbol decision threshold, wherein the FEC decode processing is performed on the
4 symbols.

1   15.   The method of claim 14 further comprising:
2   adjusting the symbol decision clock in response to the signal
3 error output; and
4   adjusting the symbol decision clock in response to the FEC
5 output.

1   16.   The method of claim 14 further comprising:
2   adjusting the symbol decision threshold in response to the signal
3 error output; and
4   adjusting the symbol decision threshold in response to the FEC
5 output.

1   17.   The method of claim 1 wherein the filter is a controllable analog

2 filter.

1   18.   The method of claim 1 wherein the filter is a controllable digital

2 filter.

1   19.   An apparatus for performing adaptive equalization comprising:

2   a filter capable of filtering a Forward Error Correction (FEC)

3 encoded signal received from channel according to at least one adjustable filter

4 coefficient to produce a filtered signal;

5   an error detector adapted to evaluate the filtered signal to

6 generate a signal error output;

7   an FEC decoder adapted to perform FEC decode processing

8 dependent on the filtered signal to generate an FEC output; and

9   a controller for adjusting the at least one adjustable filter

10 coefficient in response to the signal error output and adjusting the at least one

11 adjustable filter coefficient in response to the FEC output.

1   20.   The apparatus of claim 19 wherein the signal error output relates

2 to Mean Squared Error (MSE).

1   21.   The apparatus of claim 19 wherein the FEC output relates to bit

2 error rate.

1   22.   The apparatus of claim 19 wherein the FEC output relates to bit

2 error count.

1   23.   The apparatus of claim 19 wherein the controller is adapted to

2 first adjust the at least one adjustable filter coefficient in response to the signal error

3 output, then adjust the at least one adjustable filter coefficient in response to the FEC

4 output.

1   24.   The apparatus of claim 23 wherein the controller is adapted to

2 first adjust the at least one adjustable filter coefficient in response to the signal error

3 output until a specified condition is met, then adjust the at least one adjustable filter

4 coefficient in response to the FEC output.

1   25.   The apparatus of claim 24 wherein the specified condition is

2   based on the signal error output.

1   26.   The apparatus of claim 24 wherein the specified condition is

2   based on the FEC output.

1   27.   The apparatus of claim 24 wherein the specified condition relates

2   to an error measure falling below a predetermined level.

1   28.   The apparatus of claim 24 wherein the specified condition relates

2   to an error measure varying less than a predetermined amount in N iterations of

3   adjusting the at least one adjustable filter coefficient, where N is a positive integer.

1   29.   The apparatus of claim 23 wherein the controller is further

2   adapted to again adjust the at least one adjustable filter coefficient in response to the

3   signal error output, after adjusting the at least one adjustable filter coefficient in

4   response to the FEC output.

1   30.   The apparatus of claim 19 wherein the controller is adapted to

2   selectively adjust the at least one adjustable filter coefficient in response to the signal

3   error output or the FEC output.

1   31.   The apparatus of claim 30 wherein the controller selects to adjust

2   the at least one filter coefficient in response to the signal error output or the FEC output

3   based on a measurement of time-dependent variation of the channel.

1   32.   The apparatus of claim 19 further comprising a decision element

2   for generating a plurality of symbols from the filtered signal based on a symbol

3   decision clock and a symbol decision threshold, wherein the FEC decoder is adapted to

4   perform FEC decode processing on the generated symbols.

1   33.   The apparatus of claim 32 wherein the symbol decision clock is

2   capable of being adjusting in response to the signal error output and adjusted in

3   response to the FEC output.

1   34.   The apparatus of claim 32 wherein the symbol decision threshold

2 is capable of being adjusted in response to the signal error output and adjusted in

3 response to the FEC output.

1   35.   The apparatus of claim 19 wherein the filter is a controllable

2 analog filter.

1   36.   The apparatus of claim 19 wherein the filter is a controllable

2 digital filter.

1   37.   A system for performing adaptive equalization comprising:

2   means for receiving a Forward Error Correction (FEC) encoded

3 signal from a channel;

4   means for filtering the received FEC encoded signal using a filter

5 according to at least one adjustable filter coefficient to produce a filtered signal;

6   means for evaluating the filtered signal to generate a signal error

7 output;

8   means for adjusting the at least one adjustable filter coefficient in

9 response to the signal error output;

10   means for performing FEC decode processing dependent on the

11 filtered signal to generate an FEC output; and

12   means for adjusting the at least one adjustable filter coefficient in

13 response to the FEC output.